

# CHINESE PINYIN TEXT-TO-SPEECH SYSTEM (CPTTS): EFFECTS OF ONLINE TEXT-TO-SPEECH SYSTEM FOR SUPPORTING CHINESE LEARNING AMONG NON-NATIVE SPEAKERS OF CHINESE AS A FOREIGN LANGUAGE

\*<sup>1</sup> Goh Ying Soon, <sup>2</sup> Saiful Nizam Warris & <sup>1</sup> Yee Leong Yeng

<sup>1</sup> Academy of Language Studies  
Universiti Teknologi MARA (UiTM) Terengganu  
23000 Dungun, Terengganu, Malaysia

<sup>2</sup> Faculty of Computer and Mathematical Science  
Universiti Teknologi MARA (UiTM) Terengganu  
23000 Dungun, Terengganu, Malaysia

\*Corresponding author's email: [gohyi141@tganu.uitm.edu.my](mailto:gohyi141@tganu.uitm.edu.my)

## Abstract

Non-native learners of Chinese often experience difficulties to articulate words with precision. They need to have more practices to assist them to further improve their pronunciations. After completing the Chinese courses in the classroom, they are still lacking the ability to articulate each word with precision. Therefore, an online text-to-speech system can be handy and useful to them. This web-based Chinese pinyin text-to-speech system is specially designed and developed to facilitate the Chinese pronunciation self-learning on the web for non-native s learners. In addition, it can be a useful tool to the students of UiTM, comprising mainly of Malay native speakers and are currently using pinyin in learning Chinese. The Chinese Pinyin Text-to-Speech System (CPTTS) is used to improve the teaching of Chinese as a foreign language and further enhance students' speech on self-learning basis. Moreover, it is easy, practical, and attainable. In a nutshell, it is a helpful learning aid as the Chinese courses in UiTM are shifting towards a blended learning mode. This system will not only benefit UiTM students in particular but it demonstrates an efficient tool to all self- learners in general too. A survey was carried out to comprehend students' perceptions of the use of CPTTS to support their learning of Chinese as a foreign language. As a whole, a positive result was attained.

**Keywords:** Chinese pinyin, text-to-speech, Mandarin language learning

## 1.0 INTRODUCTION

Chinese Pinyin Text-to-Speech System (CPTTS) is a web-based text-to-speech specially developed to assist students and individuals in learning Chinese by using pinyin approach. An advantage of CPTTS is, it enables the students to type in Chinese pinyin to acquire the pronunciation. Undeniably, the collection of all articulated Chinese sounds done by this research can conduce to the community. CPTTS eases the users to use it to its fullest as the users are only required to type in pinyin, not Chinese characters. On top of that, users may type in phrases, sentences and even a short passage to obtain the immediate pronunciations.

Learners of Chinese often encounter difficulties to pronounce Chinese, be it due to shyness or a lack of confidence may hamper their articulation of speech although they have gone through formal Chinese courses. Meanwhile, pronunciation involves the manner of uttering a speech; many find it difficult to take a note. Hence, a tool such as CPTTS, to assist their quest for pronunciation will come in handy.

There are three purposes of this study. These include:

1. Provide a searchable engine for non-Chinese learners to look for Chinese pronunciation through the use of Chinese pinyin.
2. Make available a comprehensive search engine for all Chinese sounds.
3. Acquire students' perceptions on the usefulness of CPTTS to support their learning.

## 2.0 LITERATURE REVIEW

Students need to have a suitable text-to-speech system to improve their pronunciation. With the help of this system, students are able to speak more confidently in Chinese.

Text to speech (TTS) can be used to improve the teaching of Chinese as a foreign language (Tian, Wang, & Nurminen, 2005). TTS is typically useful in the teaching of Chinese as Chinese is a tonal language that needs to be apprehended and mastered by non-native learners who are not familiar to tones.

With the use of educational technology, it will be assistive for students to learn a foreign language better (Goh, 2009a, 2009b). Instructors have to recommend students in the choice of suitable educational tool such as online text-to-speech system to achieve the purpose of helping the students to enhance Chinese pronunciation.

It is always advantageous if students are able to use something they familiar to learn another foreign language (Goh & Azman, 2009a, 2009b). A learning process is facilitated when a text-to-speech system allows Chinese pinyin as an input of search, is certainly more beneficial for learners of Chinese who utilize pinyin as a mode of learning.

Another great advantage in the use of modern technology is to reduce the dependence of students upon instructors (Xu, 2010). As blended learning is adopted for Chinese

teaching, a pinyin to speech system allows students to listen to authentic Chinese speaker's speech without depending on their instructor. It is accessible at anytime and anywhere whenever it is needed. This is a laudable approach in instilling independent learning attitude.

Multimedia is of great help to students of learning Chinese as a foreign language (Yu, 2010). Students are required to expose to a variety of Chinese pronunciation in order to be proficient in the language. Face-to-face interaction in a classroom limits oneself to practices and at times do not meet learners' need due to time constraint. Hence, a pinyin to speech system is designed to cater and meet the needs of self-learners.

The contribution of international Chinese educators is vital to develop the field of the teaching of Chinese as a foreign language (Zhou, 2010). Students of UiTM are currently using pinyin in learning Chinese, thus, Chinese characters text to speech system is not applicable to them.

Web-based learning materials should be utilized in assisting students to learn Chinese better (Goh, & Irfan, 2012; He & Zhang, 2008). Participation and active learning of students in web-based instructional learning environment is vital (Jin & Lu, 2009). Students will be able to search for voice threads that they like. A web-based pinyin to speech system in this research can be seen as a helpful aid in learning as the Chinese courses in UiTM are shifting towards a blended learning mode.

Suitable text-to-speech system is vital to assist in fostering Chinese speaking skill among non-native learners of Chinese (Goh, Saiful, Aillen, & Mohd Suhaimi, 2013). A useful system is needed to be developed to meet the needs of learners in pursuing for the accurate and correct pronunciation.

In short, an appropriate text-to-speech system is vital to foster the mastery of Chinese pronunciation among the learners. Their speaking ability in public will be further enhanced once they regain their confidence.

### **3.0 RESEARCH METHODOLOGY**

The purpose of this pinyin text to speech system is to consolidate the skill of communication from listening to speaking. In this manner, it helps to build up students' communicative competency. The process is shown in Figure 1 below.

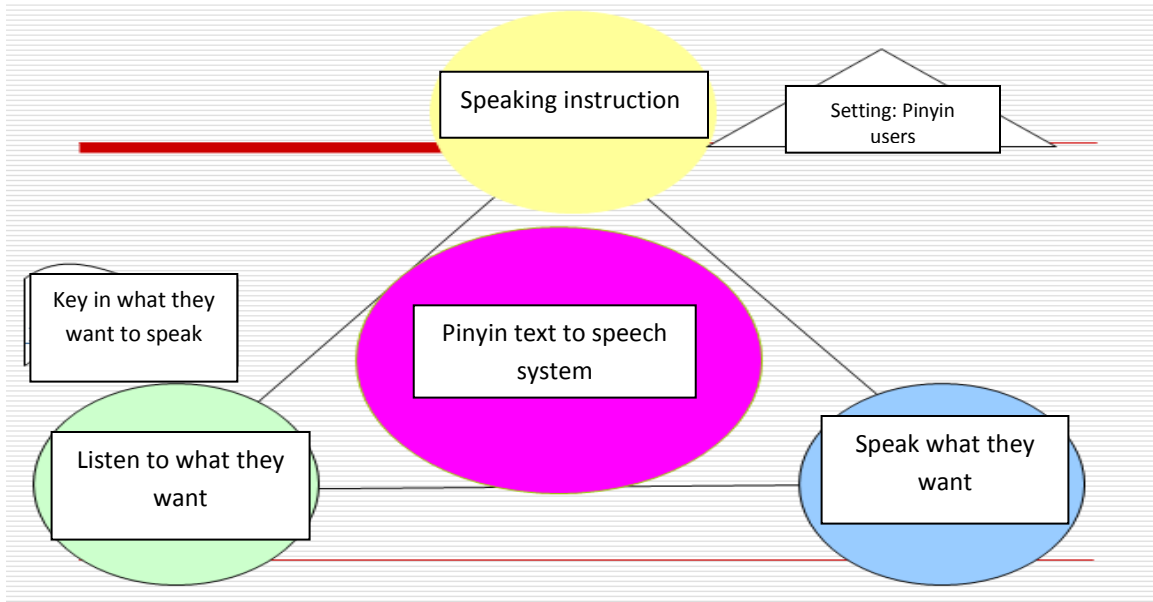


Figure 1: Purpose of pinyin text to speech system

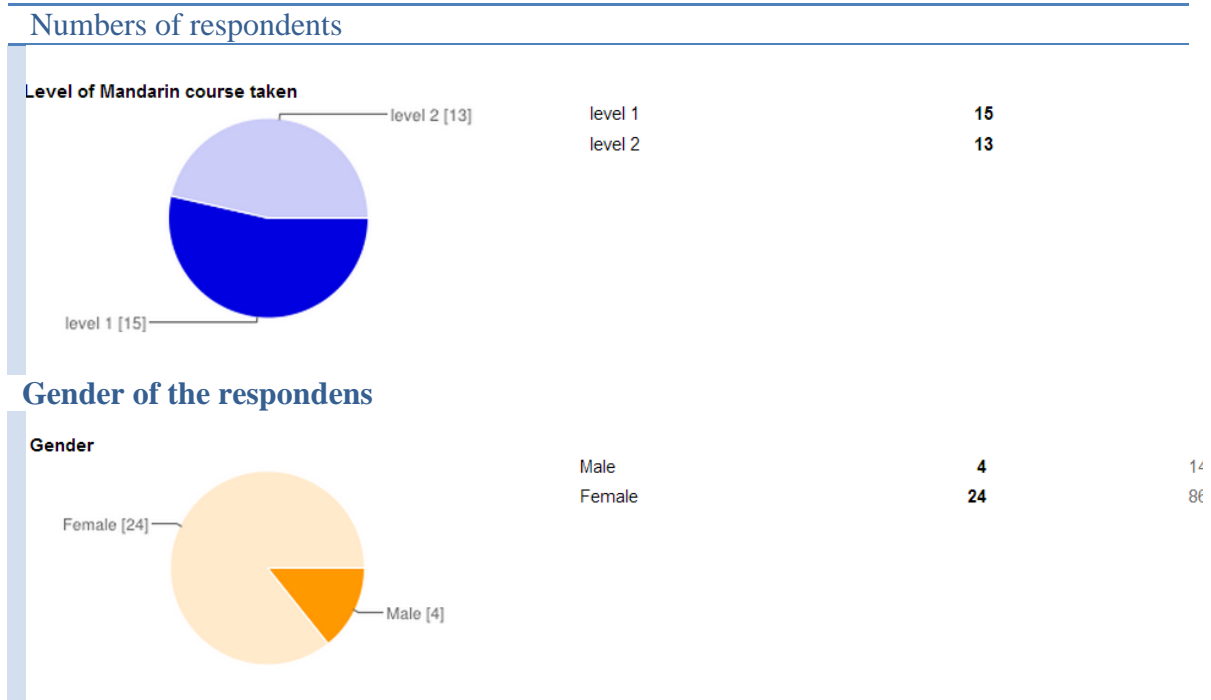
This system uses WampServer technology. It is a web-based system. It can be accessed at <http://terengganu1.uitm.edu.my/mandarin/index2.php>. Figure below shows the interface for the user.



Figure 2: User interface

Backgrounds of the respondents are shown in the table below. There were altogether 28 students from level 1 and level 2 participated in this study. After using the CPTTS for a semester, the respondents were asked to fill up an online questionnaire at [https://docs.google.com/spreadsheet/viewform?usp=drive\\_web&formkey=dGRjOFBUeEhFalkxQ1QORHhdGdNLXc6MA#gid=0](https://docs.google.com/spreadsheet/viewform?usp=drive_web&formkey=dGRjOFBUeEhFalkxQ1QORHhdGdNLXc6MA#gid=0).

**Error! Reference source not found.**Backgrounds of the respondents

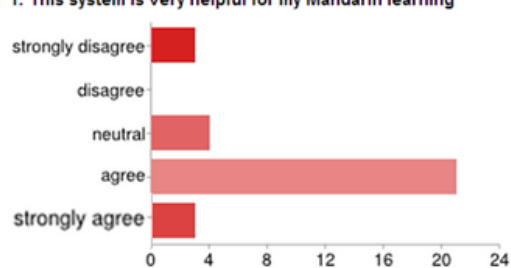


#### 4.0 FINDINGS

The findings are summarized in the table below. 85.71% of the students agreed that CPTTS is helpful for them in learning Chinese. 75% of the students agreed that CPTTS is useful in preparing for their oral examination. 78.57% of the students agreed that CPTTS enables them to speak more correctly. 78.57% of the students agreed that CPTTS assists them to speak more confidently and 78.57% of the students agreed that CPTTS is convenient for them to correct their own pronunciation without depending on their instructors. There were only 78.57% of the students agreed that this CPTTS helped to enhance their speaking skill and 78.57% of the students agreed that this CPTTS is convenient for self-practice. 78.57% of the students agreed that this CPTTS enabled them to search for the pronunciation of words that they want to utter while 82.14% of the students agreed that t CPTTS helped them to uplift their confidence in communication.

### 1 Helpfulness of the CPTTS

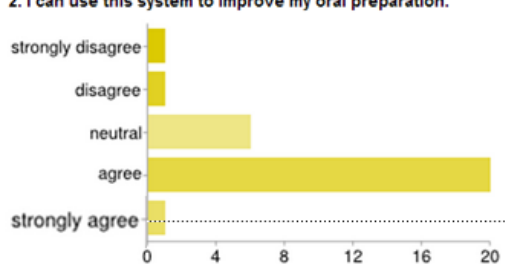
1. This system is very helpful for my Mandarin learning



strongly disagree	3
disagree	0
neutral	4
agree	21
strongly agree	3

### 2 Helpfulness for oral preparation

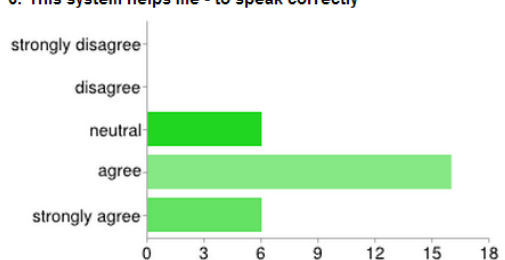
2. I can use this system to improve my oral preparation.



strongly disagree	1
disagree	1
neutral	6
agree	20
strongly agree	1

### 3 Helpfulness in speaking more correctly

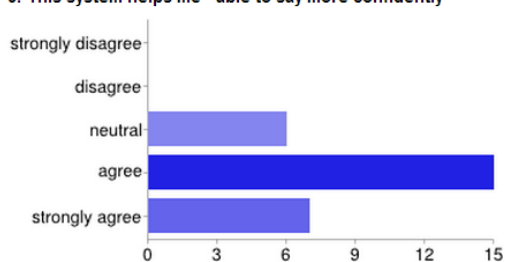
3. This system helps me - to speak correctly



strongly disagree	0
disagree	0
neutral	6
agree	16
strongly agree	6

### 4 Helpfulness in speaking more confidently

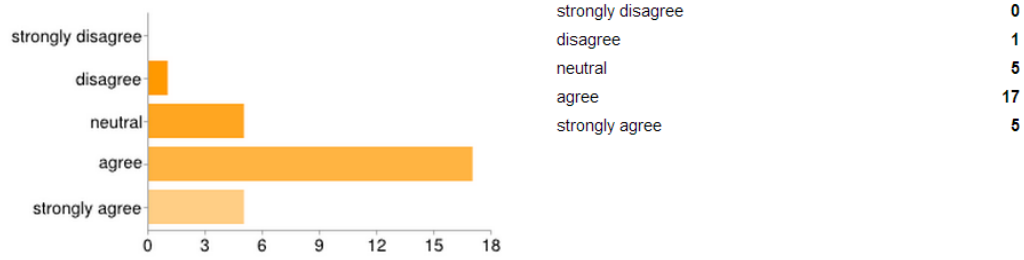
3. This system helps me - able to say more confidently



strongly disagree	0
disagree	0
neutral	6
agree	15
strongly agree	7

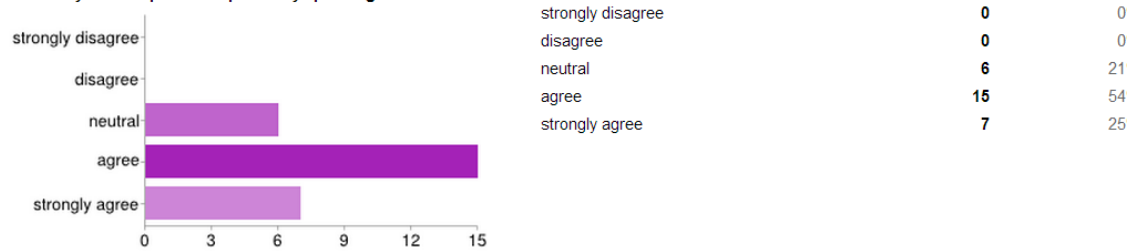
## 5 Helpfulness in freeing from dependence on instructors

3. This system helps me - do not depend my instructor to correct my pronunciation



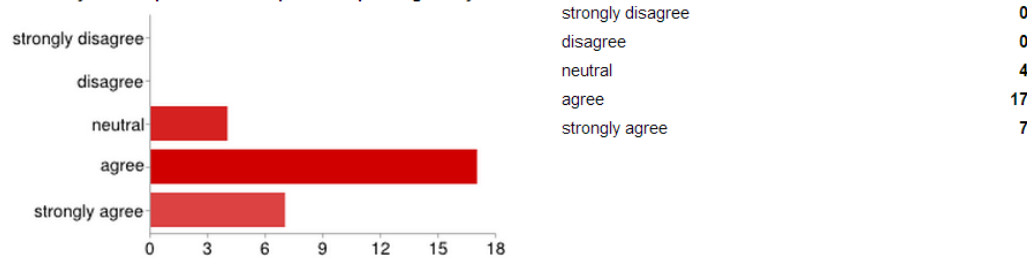
## 6 Improvement of speaking skill

3. This system helps me - improve my speaking skill



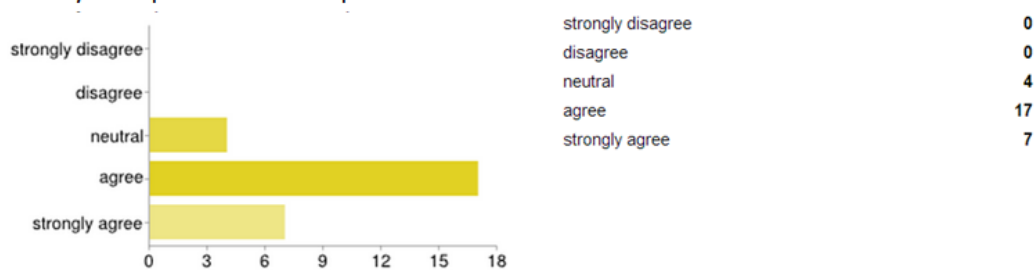
## 7 Able to have self practice

3. This system helps me - able to practice speaking on my own



## 8 Able to find the pronunciation of words they want

3. This system helps me - able to find the pronunciation of words I want to know



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## 9 Confidence to speak in Chinese

3. This system helps me - more confident to talk



## 5.0 DISCUSSION

The finding of this study is generally positive. It showed that the Chinese Pinyin Text-to-Speech System can be very supportive in assisting students to improve and master their pronunciations.

This Online Chinese Text-to-Speech can be turned into a mobile mode. Hence, it will be noteworthy to examine the effectiveness of CPTTS in enhancing pronunciation via mobile mode.

This study only reviewed the usefulness of the CPTTS on speaking skill. Further study can be done on the support of online text-to-speech skill in improving reading skill.

Further studies are still needed for the improvement of this CPTTS. For instance, more features can be added. These include the recording of students' pronunciation online, saving the instructors' voice files, comparing students' recorded sounds and instructors' voice, and etc. This will certainly ensure the affirmative effects of the use of online text-to-speech for effectual use to support the teaching of Chinese as a foreign language specifically, and foreign language instruction in general.

## 6.0 CONCLUSION

The purpose of language education and the teaching of Chinese as a foreign language is to inculcate communicative competence among the learners (Lv, 2005). However, teaching speaking for conversation and dialogues in action is not simple (Sarah, 2001). Hence, educational technology has to be used in a manner that it actually assists in improving learning.

Listening and speaking instruction are mutually related (Yang, 2002). Listening in another way supports speaking. This pinyin text to speech system makes available listening so as to espouse speaking skill. It corresponds to the task-based instruction



approach in which students can learn by doing so. This system may give a hand in supporting their doing of communication task and hence they are free to speak whatever they wish. Self-learning is vital to accomplish successful communication tasks (Zimmerman, 2000). The decency of this system is that it instills the spirit of self-learning among the students. This eventually leads to fulfilling the purpose of language learning where good communication skills can make a vast difference in our lives.

Any instructional technology has to yield positive result to support learning (Goh, Saiful Nizam, Hasiah, & Norlina, 2012; Goh & Saiful, 2013). The result of this study demonstrated a positive finding. Hence, an online text-to-speech system such as CPTTS should be adopted and used widely to support the teaching of Chinese as a foreign language typically for pronunciation enhancement.

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